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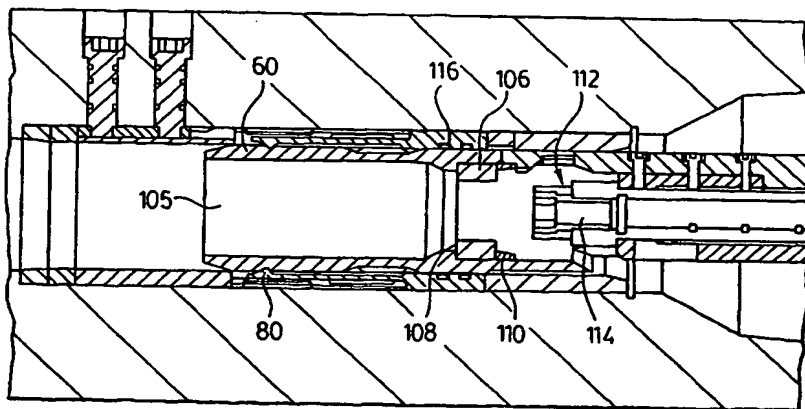
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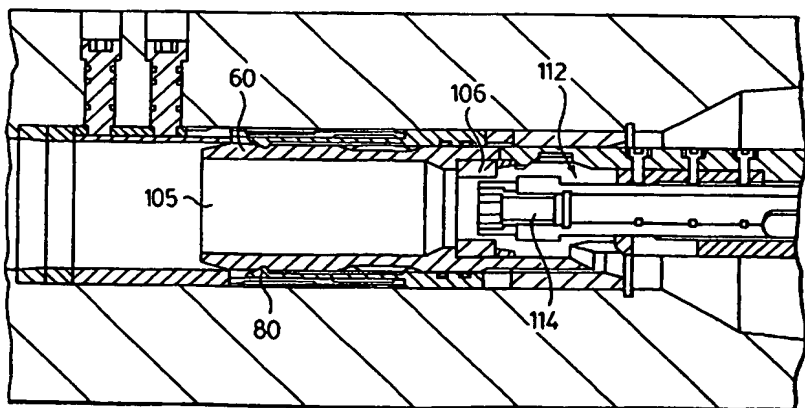
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(54) Title: **MUD PULSE LANDING ASSEMBLY FOR USE IN DIRECTIONAL DRILLING**

A



B

(57) **Abstract:** A mud pulse landing assembly (10) which allows for the removal of the mud pulse generator (16) containing the mud pulse orifice (106), thus creating an unobstructed passageway for any tool or instrumentation that may need to be passed through the drill string. The retainer (14) of the mud pulse landing assembly also provides a universal mount for engaging alternate tools or instrumentation for use in analyzing the borehole geology. The retainer (14) is positioned between the mud pulse generator (16) and the landing sub body, so as to protect the retainer from the turbulent and abrasive mud flow, and to prevent obstruction of the area downstream of the compact muleshoe (60).